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Sub-Commission on Prevention of
Discrimination and Protection
of Minorities
Fiftieth session
Item 12 of the provisional agenda

REVIEW OF FURTHER DEVELOPMENTS IN FIELDS WITH WHICH THE SUB-COMMISSION HAS BEEN OR MAY BE CONCERNED

Note verbale dated 27 July 1998 from the Permanent Mission of Iraq to the United Nations Office at Geneva addressed to the Secretariat of the Sub-Commission

The Permanent Mission of the Republic of Iraq to the United Nations Office at Geneva presents its compliments to the Secretariat of the fiftieth session of the Sub-Commission on Prevention of Discrimination and Protection of Minorities and has the honour to submit a note entitled "Post-War Environment in Iraq".*

The Permanent Mission of the Republic of Iraq would be grateful if the aforementioned document could be circulated as an official document of the fiftieth session of the Sub-Commission under agenda item 12.

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* The attachment is circulated as received, in the languages of submission only.

ANNEX

Post War Environment in Iraq

Unrelated Medical Phenomena Cancer, Abortion, Congenital Anomalies, Myo- and Neuropathy

A report on the Use of Depleted Uranium Weapons

1997

Impact of Radiation Weapons on Health

The population in Iraq was exposed to the explosion of thousands of tons of ammunition in the course of military operations of the US led allies. The ammunition used was so immense and diversified, among which some were used for the first time in the history such as depleted uranium (DU). In addition to the severe direct effects of those weapons on civilians, their use caused a serious pollution of the environment. After many years, the long-term effects started to appear. Theses health effects were studied and the related data were analyzed. These effects include cancer, congenital anomalies, abortion, neuropathy and myopathy. Epidemiological and statistical studies are still being carried out to measure the extent of the immoral and illegal use of these weapons against Iraq. The collected data were tested for their statistical significance to assess their scientific value, and to prove the causal relationship of using DU with the impact on health and environmental pollution.

This report is not but a scientific proof put before the researchers and scientists for their consideration, and to enhance their work in this field in order to uncover the immoral and illegal use of DU by the US. The report, also, gives clear picture of the environmental pollution in Iraq which greatly affected and is still affecting the citizens of Iraq, specially in the bombarded areas. We put this scientific document before the world to reveal the intentions of the US aggression on Iraq. After all, will the claim of the aggressors that what they so call "Second Gulf War" was "clean"?!!!

The research included the following;

1- Field Environmental Studies

A- Many studies were carried out to determine the types of weapons and ammunition used and their impact on people and on environment. Special emphasis was given to the southern areas of Iraq that was subjected to intense bombing in the course of military operations.

B- A study revealed that vast areas in the south are polluted due to the use of radiological weapons. On top of the large

number of casualties in those areas due to the instantaneous effect of these weapons, unusual diseases were registered later on. Also, many unexploded projectiles were found, among which was DU ammunition. (Fig. -1)

C- Tables 1, 2 and 3 clearly reflect the results of radiological pollution in the southern region, and present the material proof against the claim that the "Gulf War-II" was **clean**. !!!

D- The long-term effects of DU on the environment are still not fully developed. This presents a potential risk with time. This situation imposes the need to further field and specialized studies and research.

TABLE (1) Field Measurements at NORTH RUMAILA AREA

		Radiation Exposure (Micro Roentgen/hr)	
	Type of chosen sample	Background	chosen sample
1	Armored personal Carrier BMB-1	8.1	24.6
2	Armored personal Carrier MTLB	8.2	9.7
3	T-72 Tank	8.7	15.1
4	Rescue Tank	7.2	13.2

TABLE (2) Field Measurements at SHAMIA AIRFIELD / GUDAIRAT AL- AUDHAIMI AREA

		Radiation Exposure (Micro Roentgen/hr)	
	Type of chosen sample	Background	chosen sample
1	T-72 Tank	7.0	60.8
2	Armored personal Carrier (Watercan)	7.2	60.3
3	Far away area from chosen sample (1) / T-72	7.1	7.3
4	Far away area from chosen sample (2) / Watercan	7.3	7.2

TABLE (3) Field Measurements at DMZ and Surrounding Area

	Type of chosen sample	Radiation Exposure (Micro Roentgen/hr) Background	chosen sample
1	Unexploded DU Warhead (near Karrange Oil Pumping Station on the Iraqi - Saudi border	7.4	83
2	Tank/T-55 (between cross road Nos 13 and 14)	7.6	21
3	Tank / T- 72 (No. 16107)	7.2	23
4	Tank /T-55 (Left of cross road No.9)	7.4	67
5	Tank/ T-72 (near international observation post between cross roads 12 and 13)	7.6	69
6	Tank/ T- 72 (South West on Mount Sanam)	7.0	65

2- Medical Studies

Many epidemiological and analytical studies were carried out on samples of unusual cases and diseases, and were statistically compared to control groups according to academic and scientific methodology.

2-1 First Study

A- This study dealt with five diseases; cancer, abortion, congenital anomalies, neuropathy and myopathy.

B- The study sample was selected from the cases that occurred for each of these five diseases for each governorate of Iraq.

C- For statistical analysis, a control group for each disease was selected from the same governorate.

D- Being subjected to bombardment or being in the bombarded regions was taken as in indicator in this study.

E- Five forms were carefully designed for this study. These included personal, environmental, social, epidemiological, health history, disease history and exposure to bombardment (place and time) data. The same applies to the control groups.

F- Data were statistically examined and analyzed to find out (Relative Risk) , (Odds Ratio) and (Test of Significance).

G- The total number of forms was (5764). Among those were (1314) abortion, (752) congenital anomalies, (667) cancer, (68) neuropathy and (81) myopathy cases, i.e., totaling (2882) cases. The number of control group was also (2882). (Table-4)

H- The study concluded that their is statistically significant relationship between the exposure to bombardment and the increase in cancer, abortion and congenital anomalies with odds ratios (4.6), (3.2) and (2.8) respectively. (Table- 8)

I- Diyala, Basra, Misan, Muthanna and Thi-Qar Governorates had the highest increase in cancer cases among other governorates. (Table- 5)

J- Nineva, Diyala, Baghdad, Basra, Misan and Najaf Governorates had higher increase of abortion cases. (Table-6)

K- Tamim, Diyala, Baghdad, Basra, Misan, Muthanna and Najaf Governorates had the highest increases in congenital anomalies. (Table-7)

Conclusions

1- The odds ratio in retrospective epidemiological studies had shown substantial deviation towards the exposure to bombardment and its relation to each of the five diseases that were examined in this study. The significance test assures that this relationship can in no way happen by chance.

2- The increase in cases and their geographical distribution among the governorates coincides with the actual bombardment and military operations and their intensity.

3- The cancer cases that had higher increase were leukemia, Lung Cancer, Ca Bronchus, Ca Bladder, Ca Skin, Ca Stomach for males and Ca Breast for females. This goes with WHO publications and the results of international research and studies on the impact of ionizing radiation. The increase in these types of cancers took place within three years after the aggression. Other types of cancer, such as CA Thyroid, needs more time to appear, 10-40 years after the exposure to radiation according to WHO literature.

4- The increases in abortion and congenital anomalies cases are

considered to be rapid consequences of exposure to radiation. There are other congenital anomalies that continue for three to four generations for parents that were exposed to radiation.

Table -4 Sample and control groups for the five diseases according to governorate of Iraq

	Governorate	Abortion	Congenital Anomalies	Cancer	Neuropathy	Myopathy
1	Baghdad	44	42	16	4	13
2	Ninevah	90	30	39	14	6
3	Basra	42	94	31	28	10
4	Tamim	98	61	112	4	2
5	Misan	96	89	58	0	0
6	Anbar	92	77	51	3	12
7	Salahudin	97	51	39	3	2
8	Thi-Qar	98	76	45	2	6
9	Muthanna	82	15	42	2	7
10	Wasit	96	37	53	4	11
11	Diyala	97	42	44	3	6
12	Babil	90	16	30	0	0
13	Najaf	111	79	43	1	6
14	Kerbala	90	16	30	0	0
15	Qadisia	91	17	31	0	0
	Total	1314	742	667	68	81

Table –5 Registered Cancer Cases in Baghdad and other governorates

	Governorate	1989	1994	Relative Risk
1	Baghdad	4183	6427	1.53
2	Ninevah	1500	1629	1.09
3	Basra	180	461	2.56
4	Tamim	86	114	1.33
5	Misan	37	218	5.89
6	Anbar	51	95	1.86
7	Salahudin	90	94	1.04
8	Thi-Qar	72	489	4.01
9	Muthanna	27	59	3.18
10	Wasit	44	69	1.56
11	Diyala	69	134	2.19
12	Babil	73	166	2.27
13	Najaf	70	126	1.80
14	Kerbala	28	45	1.61
15	Qadisia	53	86	10.62
	Total	6563	10212	

Table- 6 Abortion Cases in Baghdad and other governorates for the years 1989 and 1994

	Governorate	1989	1994	Relative Risk
1	Baghdad	6281	7729	1.2
2	Ninevah	2364	3440	1.5
3	Basra	2137	3618	1.7
4	Tamim	1458	1826	
5	Misan	1879	3196	1.3
6	Anbar	2351	2622	1.1
7	Salahudin	1611	1507	0.9
8	Thi-Qar	1491	2728	1.8
9	Muthanna	1015	707	0.7
10	Wasit	1234	1882	1.5
11	Diyala	1382	3314	1.4
12	Babil	1219	1724	1.4
13	Najaf	987	2480	2.8
14	Kerbala	1138	2316	2.1
15	Qadisia	1223	2627	2.1
	Total	27770	41716	

Table- 7 Registered Cases of Congenital Anomalies Abortion in Baghdad and other governorates for the years 1989 and 1994

	Governorate	1989	1994	Relative Risk
1	Baghdad	138	294	2.1
2	Ninevah	65	77	1.1
3	Basra	40	117	2.9
4	Tamim	45	122	2.7
5	Misan	41	86	2.1
6	Anbar	34	71	2.1
7	Salahudin	64	68	1.1
8	Thi-Qar	29	32	1.1
9	Muthanna	35	81	2.3
10	Wasit	49	54	1.1
11	Diyala	34	36	1.1
12	Babil	38	44	1.2
13	Najaf	0	1235	
14	Kerbala	25	27	1.1
15	Qadisia	37	42	1.1
	Total	674	2386	

Table- 8 Odds Ratio of the exposure to bombardment for the study and control groups for the five diseases in Iraq

Cases	Sample Size	No. of Cases	Control	Odd Ratio
Abortion	1314	988 75%	637 48.7%	3.2
Congenital Anomalies	752	463 61.5%	318 42.2%	2.8
Cancer	667	519 77.8%	224 33.5%	4.6
Neuropathy	68	63 92.6%	58 85.3%	1.7
Myopathy	81	77 95%	73 90%	1.4

2-1 Second Medical Study

Another study was conducted after analyzing available data for cancer, congenital anomalies and abortion cases for some governorates. The study concluded the following;

A- There is a statistically significant relationship (odds ratio=3.85) for the sample group of cancer patients compared to the control group. This proves that there is 'Causal Association' between exposure to bombardment and increase in cancer cases. (Table-9)

B- The study, also, concluded that there is a statistical relationship for the sample group of congenital anomalies cases compared to the control group (Odds Ratio=2.05). Statistically, this is considered to be highly significant, and proves that there is a relationship between exposure to pollution and the cases.

C- The above also applies for the abortion cases where Odds ratio was 2.9.

D- There is a change in the epidemiological pattern for the most prevailing cancer types in Iraq. Leukemia and Non-Hodgkin's Lymphoma became the 2nd and 3rd rank respectively, while rank of Ca Bladder changed after being the 2nd rank for a long period (25 years) next to Ca Bronchus. (Table-12)

E- The incidence rate for age groups (45-50) and (50-55) had

become the highest after Jan., 1991. Prior to that, the age group (60-65) had the highest cancer incidence in Iraq. (Cancer Registry, 1976-1991, Ministry of Health)

F- New type of cancer cases had emerged. These types were not of did not have importance prior to Jan., 1991. These include Osteo Sarcoma, Teratoma, Nephroblastoma and Rhabdomyosarcoma.

3- Recommendations

A- Some types of cancer cases do not appear until a long period of time elapses after exposure to radiation. WHO, in its publication on exposure to radiation, estimates that period to be 40 years for Ca Thyroid. The same applies for other long term diseases and health problems that do not show until more time passes. This implies continuous monitoring and surveillance.

B- All medical studies recommended that research and studies should be enhanced and continued. They also recommend future prospective studies to be conducted.

4- Summary

In 1991, the environment in Iraq was exposed to the greatest ever damage due to the aggression led by the US. In order to highlight the extent of that damage, this report was presented to the exceptional session of the UN General Assembly on Environment and Development. All friends, international and humanitarian organizations are called upon to join us to overcome the burden of pollution caused by the aggression and the continuation of UN sanctions imposed on Iraq, and hence to put an end to this humanitarian catastrophe. And, simply because the environmental impact is not stopped by political borders, the damage does not affect Iraq only, but it as well, affects all the countries of the region and the global environment.

Table - 9 Study Group for Cancer Cases vs. Control Group

	Study Group	Control Group
Yes	197	286
No	5	28
Total	202	314

Cause: Exposure to Bombardment

Odds Ratio =3.85

Table - 10 Study Group for Congenital Anomalies Cases vs. Control Group

	Study Group	Control Group
Yes	41	39
No	6	13
Total	47	52

Cause: Exposure to Bombardment

Odds Ratio =2.05

Table - 11 Study Group for Abortion Cases vs. Control Group

	Study Group	Control Group
Yes	24	41
No	3	15
Total	27	56

Cause: Exposure to Bombardment

Odds Ratio =2.9

Table – 12 Percentage of Cancer Types of the study group

Ca Bronchus	16.4%
Leukemia	14.3%
N-lymphoma	13.7%
Ca Larynx	10.6%
Ca Bladder	9.4%
Ca Skin	8.6%
Others [1]	27.0%

[1]Others include Ostetsarcoma, Tertoma, Medull bla stoma, Nephroblastoma 3rd Ventricle Tumors, Rhabdomyosarcoma.

Distribution of Leukemia in the southern provinces / IRAQ

1989 - 1996

Province	1989		1993		1994		1995		1996	
	Total No. of cases*	Leukemia	Total No. of cases*	Leukemia	Total No. of cases*	Leukemia	Total No. of cases*	Leukemia	Total No. of cases*	Leukemia
Wasit	226	5.3%	200	7.0%	203	7.4%	191	7.3%	224	4.9%
Maysan	134	4.5%	129	6.2%	121	5.8%	81	7.4%	118	11.9%
Al-Qadisyah	176	6.8%	225	15.1%	185	13.0%	169	5.9%	145	6.2%
The-Qar	283	4.6%	312	8.7%	274	8.4%	234	7.7%	248	6.9%
Al-Basrah	294	5.4%	294	8.5%	230	6.1%	319	9.1%	286	14.3%
Al-Muthana	104	3.8%	165	10.9%	112	8.0%	111	9.9%	99	5.1%

* Total No. Of different types of Ca. cases